GMI Status Report
October 6, 2004

Tropospheric Model & Simulations – New Simulations (September)

Numerous minor but important modifications were made to the code over the summer, resulting in what we are calling 'Version 1' of the tropospheric model. See the GMI web site for details. Version 1 simulations using DAO, GISS, and CCM3 met fields are available via anonymous ftp to dirac.gsfc.nasa.gov; cd to /pub/gmitdata/gmit-v1/chem. A description of the changes implemented in Version 1, including new 3D diagnostic outputs, can be found in the README file in /pub/gmitdata/gmit-v1. Tracer transport simulations that supplement the analysis of the full chemistry experiments are being completed. The tracers simulated are fossil fuel CO, biomass burning CO, fossil fuel CO_2, and a CH_3I-like tracer (with constant marine emissions) to diagnose marine convection. An announcement will be sent out when they are finished.

We are now working on the implementation of Version 2. Bryan Duncan and Steve Steenrod will implement the effect of aerosols on photolysis rates and will expand the number and types of aerosols involved in heterogeneous chemical reactions. The Pickering/Allen lightning parameterization will also be implemented in this version. We expect this version to be ready in Fall, 2004.

Hamid Oloso has implemented 'Fast-JX' into the GMI code. 'Fast-JX' is Michael Prather's new version of Fast-J2 appropriate for both stratosphere and troposphere. Fast-JX results are being evaluated against look-up-table results for the stratosphere.

Aerosol Model & Simulations – New Simulations (August)

Two-year integrations of the aerosol model using DAO, CCM3, and GISS met fields (Michigan chemical inputs) were completed over the summer. All three met field simulations will be rerun soon with two changes: new dust emission files (from Xiaohong Liu) and corrected natural sulfate emissions. Xiaohong discovered an error in the sulfate emissions input and has provided a corrected input file. These changes will not affect existing results for sea salt, organic carbon, and black carbon. All aerosol simulations are available via anonymous ftp to dirac.gsfc.nasa.gov; cd to /pub/gmitdata/gmia.

Stratospheric Model – New Simulations (October)

The hindcast simulations are running a 2^ox2.5^o horizontal resolution x 33 level (lid at 0.015 hPa) version of the code. The code has been modified to include a solar cycle, the aerosol effects of El Chichon and Pinatubo, and production of NO_x from galactic cosmic rays. The 'warm year' hindcast began with 1973 and has completed about 25 years. The 'cold year' also started in 1973 and has completed about 5 years. We have post-processed model output to make it easier to read and plot using IDL. The processed output is not yet on dirac but can be obtained, as can the IDL readers for this output. Contact Susan Strahan for details.

Strat-trop Combined Model – 1 Year Test Simulation (October)

Jules Kouatchou has successfully compiled and executed a 1-year simulation. David Considine is evaluating the results against the 1-year simulation run by Peter Connell at LLNL.

New Met Fields

We have obtained a 5-year integration of the FVGCM at 2^{o}x2.5^{o} resolution, 55 levels, using annually-varying SSTS for 1994-1998. These met fields will be processed and ready to use in the GMI models this fall.

We are about to get two sets of analysis data of the TRACE-P period (Jan-Apr 2001). One is from the GEOS-4-CERES DAS (the current operational assimilation system from the NASA GMAO). The other is a GEOS-4-CERES "integrated forecast product". This product is a 36-hr forecast initialized with the GEOS-4-CERES DAS analysis fields; we use the final 24 hours. This is similar to the ECMWF forecast product used by Michael Prather and collaborators for analyzing the TRACE-P data. GMI experiments with these two met products will allow us to evaluate (using TRACE-P observations) whether forecast products represent an improvement over pure assimilation products. ECMWF forecast products will also be available for this analysis period (Michael Prather).

In the very near future, we (GMI) will be able to obtain additional GMAO reanalysis periods and forecast products. We need to think about and discuss what periods we would like to simulate.

Miscellaneous

Data Access - The entire GMI archive is accessible through anonymous ftp access. The hostname is dirac.gsfc.nasa.gov and the archive directory is /pub/gmidata

Model documentation – Jules Kouatchou has completed a draft GMI model user's manual. It has undergone some internal review. It is not yet posted on the web site but is available on request.

Meetings

1. Steering Committee Meeting, GSFC, 10 a.m. Monday, October 18, 2004. The meeting room is in Bldg. 33, Rm. F225. If you have already RSVP'ed, a badge will be ready for pickup in the GSFC Security Building at the Main Gate Monday morning. That building is undergoing renovation and is scheduled to reopen Oct. 18. I will send an announcement if that reopening is delayed. *If you plan to attend and have not RSVP'ed and are NOT a NASA employee, please RSVP as soon as possible*.

2. The Science Team meeting will be held November 17-19, 2004 at NCAR. See the GMI web page for details. The cutoff date for hotel reservations at the NASA rate is 17 October.